

Notice of Allowability

Application No.

10/749,181

Examiner

Jaworski Francis J.

Applicant(s)

HOCTOR ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Rule 116 Amdt 5/12/06.
2. ☒ The allowed claim(s) is/are 1-3, 5-23 and 25-49.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

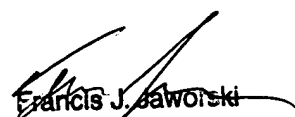
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 6-22-2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


Francis J. Jaworski
Primary Examiner

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

1) Insofar as this application included method and apparatus claims which effect computational algorithms yet do not involve a physical transformation of matter the claims were evaluated for statutory content with respect to 35 USC 101 in accordance with current PTO guidelines promulgated in the Official Gazette 11/22/05.

All claims were considered to be statutory insofar as they are associated with the concrete and tangible process of transmitting beams of ultrasonic wave energy towards and receiving reflections from an artery under test and provide a concrete result of a blood pressure or pulse wave velocity measurement.

The following art is cited as of interest:

Asmar (US6511436, of record) does in fact use reflected wave energy in an ultrasonic pulse wave velocity measurement as discussed col. 7 line 39 – col. 8 line 9 however this is a correction for anatomic distance variations in order to effect pulse wave velocity measurement. In other words the pulse wave reflections are not corrected or compensated for, rather they are used to determine true distance from the heart to peripheral measurement sites for conventional pulse wave velocity determinations.

Hatschek (US5309916^{of record}) is directed to a method and system which uses ultrasound (col. 5) to determine flow or pulse wave velocity by computational process which uses the measured time shift between primary and reflected arterial pulse waves as the primary pulse wave velocity measurement, see col.7 line 35 – col. 8 line 28 and

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col. 23 lines 29 – 54. The reflected arterial pulse wave is therefore not corrected for since it, in and of itself constitutes part of the measurement result.

Mitchell (US6331162) is directed to a pulse wave velocity measurement with mention of ultrasound Doppler as alternative to pulse pletysmographic sensor input however the pulse wave foot is measured by the preferred PPG device since it is stated to be immune from reflection presence, in effect a teaching away from reflection correction of any sort, see col. 6 lines 9 – 13.

Goodman (US6616613) is directed to overcoming prior art shortcomings to the use of reflected wave components in and of themselves to parameterize vascular health by photoplethysmographic techniques, see col. 2 line 11 – col. 3 line 24, col. 14 line 40 – col. 15 line 44, col. 23 lines 48 – 62.

Meister et al (US5099852) teaches ultrasound pulse wave velocity measurement including an adjustment step 12 however this constitutes mathematical least squares iteration unrelated to reflected arterial pulse waves.

Rantala (US7029447) is directed to using an impedance cardiogram with a peripheral pulse plethysmographic sensor where the sensor threshold amplitude is adjusted to correct for a reflected wave component, see col7 lines 14 – 19 and col. 9 – 10 pulse detection portion.

None of the prior art, alone or in combination suggests or teaches a method or apparatus which corrects for reflected arterial pressure wave effects during ultrasound pulse wave velocity measurements, and the prior art either used reflection effects as a characterizing phenomenon or 'worked around' reflected effects as a perturbation in

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contradistinction to applicants' technique inter alia paras [0021] and [99 – 137] where artery pulse pressure wave reflection effects are characterized and corrected for.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 571-272-4738.

FJJ:fjj

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Francis J. Jaworski
Primary Examiner